

REMARKS

The subject Request for Continued Examination (RCE), the above amendments, and the following remarks are submitted as a full and complete response to the Official Action dated July 30, 2003 and the comments in the Advisory Action dated December 3, 2003. No new matter has been added. The period for response having been extended from October 30, 2003 until December 30, 2003 by the attached Petition for Extension of Time, this response and RCE is timely filed. Claims 1-14 have been amended to more particularly point out the present invention and claims 1-14 are again submitted for consideration.

Claims 1-14 remain rejected under 35 U.S.C. §102(b) as being anticipated by *Kapadia* (U.S. Patent No. 5,768,314). The Office Action alleges that *Kapadia* teaches all of the limitations of the claimed invention. Applicant respectfully submits that the prior art cited in the Office Action fails to teach, suggest or disclose the features of the instant claims as presently presented.

The present invention is directed, according to claim 1, to a method for boosting data transmission in a telecommunications system. The method includes providing a first transmission path connecting terminal equipment with a fixed station, providing a second transmission path connecting the fixed station with a transcoder unit, transmitting speech parameters on the first transmission path using a first speech coding method, converting the speech parameters between the first speech coding method and a second speech coding method, the second speech coding method being speech coding at a lower

transmission rate than the first speech coding method and transmitting the speech parameters at least on a part of the second transmission path using the second speech coding method.

The present invention is directed, according to claim 6, to an arrangement for boosting data transmission in a telecommunications system comprising a fixed station, terminal equipment, and a transcoder unit. The arrangement includes a first transmission path connecting the terminal equipment with the fixed station configured to use a first speech coding method to transmit speech parameters, a second transmission path connecting the fixed station and the transcoder unit configured to use a second speech coding method to transmit the speech parameters; at least one first speech coder configured to convert the speech parameters between the first speech coding method and the second speech coding method, the second speech coding method being speech coding at a lower transmission rate than the first speech coding method.

The present invention is directed, according to claim 10, to a mobile communications system. The system includes a base transceiver station, a mobile station, a transcoder unit and a first transmission path connecting the mobile station with the base transceiver station. The first transmission path is configured to use a first speech coding method to transmit speech parameters and at least one first speech coder is configured to convert the speech parameters between the first speech coding method and a second speech coding method. The second speech coding method is used to transmit the speech parameters on a transmission path between the first speech coder and the transcoder unit

and the second speech coding method being speech coding of a lower transmission rate than the first speech coding method.

The present invention is directed, according to claim 14, to a telecommunication system having terminal equipment connected to a network side of the telecommunications system over a first transmission path configured to transmit speech parameters using a first speech coding method. The network side includes a fixed station connected to a transcoder unit over a second transmission path configured to transmit the speech parameters using a second speech coding method and a speech coder configured to receive the speech parameters from the terminal equipment and to convert the speech parameters into the speech parameters of the second speech coding method, or to receive the speech parameters to be transmitted to the terminal equipment and to convert the speech parameters into the speech parameters of the first speech coding method.

As a result of the claimed invention, a system and method for boosting of data transmission is provided. One advantage of the present invention is that less transmission capacity is needed per speech connection, at least, in a part of a transmission connection between a base transceiver station and a transcoder unit of the network. Another advantage of the data communications system according to the invention is that the system allows the transmission of data between terminal equipment using different speech coding methods. These advantages are not all inclusive but merely exemplars of some of the benefits of the invention.

Kapadia discloses an apparatus and method for providing a combination full/half rate service type comprising a half rate speech code and a full rate channel codec having a front end arranged for communication with the half rate speech codec wherein the front end includes a "bit mapping re-ordering module." Speech is delivered to an input 10 of an audio interface 12 of a mobile station 11. The audio interface transmits the speech to a first half speech codec for providing coded signals. The coded signals are delivered to a parameter sensitivity bit re-ordering module 33 of the coded signals. The re-ordered bits are delivered to a full rate channel codec 20 for further processing. The output of the full rate channel codec is transmitted over the air via RF interfaces 22 to a second hybrid channel processor 31 located at a base transceiver station 13.

Applicant submits that *Kapadia* fails to disclose or suggest the elements of the invention as set forth in the claimed invention, and thereby fails to provide the critical and nonobvious advantages that are provided by the invention. In order to anticipate a claim, it is well established that a reference must disclose every element of the claim. *Verdegaal Bros. V. Union Oil Co.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d (Fed. Cir. 1989)

Applicants respectfully submit that *Kapadia* does not anticipate the claimed invention because *Kapadia* fails to disclose or suggest several limitations of the claimed invention. Broadly speaking, the present invention is concerned with defining first and second transmission paths wherein speech coding is performed to convert the

transmission rate on the second transmission path to a rate lower than on the first path. As discussed on page 6 lines 1-30 and Figure 3 of the application, in the present invention the mobile station MS may use full rate speech coding. The speech parameters of the full rate speech coding are transmitted between the base transceiver station BTS and the mobile station MS. The speech parameters are converted for a transmission connection between the base transceiver station BTS and the network transcoder unit TRAU into speech parameters of the speech coding of a lower transmission rate, in the embodiment shown in Figure 3, into speech parameters of half rate speech coding. Thus, the speech parameters received from the mobile station are decoded at the end of the base transceiver station BTS and a new speech coding is carried out by a speech coding method of a lower transmission rate. The new speech parameters thus obtained are transmitted over the transmission connection to the transcoder unit TRAU.

Applicants respectfully submit that *Kapadia* fails to anticipate the claims of the invention because *Kapadia* fails to disclose each and every element of the claims. The instant claims have been amended to make it clear that the same speech parameters are transmitted on the first transmission path using a first speech coding method, then converted between the first and a second coding methods and lastly transmitted at least on a part of the second transmission path using the second speech coding method. Applicants respectfully assert that *Kapadia* fails to teach or suggest a methodology.

The method of *Kapadia* seeks to provide a combination of a half rate speech codec and a full rate channel codec (see for example col. 2, lines 60-63 and Figure 3). The “first transmission path” which is represented by transmitted signals 34 is the radio path between the mobile station 11 and the base transceiver station 13. The “second transmission path” of *Kapadia* is the serial link 39 “between” the base transceiver station 13 and the half rate speech codec 37.

In *Kapadia*, the “speech is coded in the mobile station” and the “subsequent speech coding takes place in the half rate speech codec 37”, which is situated after the second transmission path when the signal is coming from the direction of the first transmission path. Therefore, in *Kapadia*, when the signals are transmitted to the second transmission path along “serial link 39”, the speech coding in the second transmission path does not differ from the speech coding in the first transmission path.

In comparison to the embodiments of the present invention, the transmission path from the base transceiver station BTS1 22 which includes the DEC/ENC 45 and the BSC1 20 to the TRAU1 26 has a transmission rate which is lower than the transmission rate along the path that connects the mobile station MS1 and the base transceiver station BTS1 as shown for example in Figures, 4a, 4b, 5a, and 5b. In contrast, the corresponding segment of the transmission path in *Kapadia*, which is the transmission path shown by the serial link 39 from the base transceiver station 13 to the half rate speech codec does not include a lower transmission rate. In *Kapadia*, when the data is transmitted from the base transceiver station 13 via the serial link 39 to the half rate codec 37, the transmission

rate remains the same as the transmission rate from the mobile station 11 to the base station 13.

Additionally, in the Advisory Action of December 3, 2003, the Office appears to broadly interpret *Kapadia* as teaching that the full rate channel codec could be a speech codec also. However, *Kapadia* does not provide or suggest such a position. The newly cited document, Flanagan, discloses a speech coding method called "channel vocoder." Therein, the speech signals are divided into spectrum channels, i.e. the speech coding is based on that method. However, this has nothing to do with the (radio) channel coding as is presented in the instant invention.

Additionally, as they are used in the art, speech coding and channel coding are very different things. Speech coding is used in different kinds of trunking solutions, which may or may not have radio interference. The channel coding relates to the coding that is performed on data/speech before it is sent as a bit stream through a "hostile" radio interface. The meaning of channel coding is to make the bit stream more "resistant" to different kinds of occurrences that it may encounter on the radio path. Thus, the ambition of speech coding is totally different, i.e. to remove all possible redundancies and transport the most relevant information only. For this additional reason, Applicants respectfully assert that *Kapadia* fails to teach or suggest all of the elements of the independent claims.

Thus, *Kapadia* does not teach or suggest a method for boosting data transmission in a telecommunications system as recited in claims 1, 6, 10 and 14. In addition, claim 4 depends from claim 1, claims 7-9 depend from claim 6, and claims 11-13 depend from



claim 10 and are therefore allowable at least for the reasons claims 1, 4, 6 and 10 are allowable, respectively, and for the specific limitations recited therein. Applicants respectfully request the allowance of all claims and request that the application be allowed to proceed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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Enclosures: Request for Continued Examination (RCE)
Petition for Extension of Time